Reviewer's report

Title: A population-based cohort study of chest x-ray screening in smokers: Lung cancer detection findings and follow-up

Version: 1 Date: 28 September 2011

Reviewer: Pamela Marcus

Reviewer's report:

My concerns with this manuscript are two-fold:

1. the quality of the data collected
2. the analyses presented and the way the data are interpreted.

i also have some other concerns that i will include in section 3, 'other'

1. quality of data collected
   a. the authors selected a cohort of potential research subjects, but only 21% participated. this draws in question whether the data are population-based, as the authors claim.
   b. the smoking exposure are questionable - there is no explanation as to how the researchers knew that their subjects had at least 10 pack-years.
   c. how were the 50 GPs selected? is this a random sample of GPs?
   d. were investigators blinded to method of detection (screen vs. symptom) when assigning cause of death.
   e. screening participation rates at later years were extremely low.

2. analyses and data interpretation
   a. comparisons should be restricted to participants vs. non-participants.omit data for hte entire cohort (what's the benefit of showing this data?) and the control group.
   b. treatment of impact of screening biases (leadtime, length sampling, and overdiagnoses) are confusing, not rigorous, and in places in error.
   c. too many tables and figures

3. other
   a. limitatons of RCTs are discussed, but limitations of observational research are not.
   b. selective discussion of previous research in this area and state of the science.
   c. research is somewhat outdated given the results of the nlst
   d. is this study called PREDICA? if not, what is predica?
e. criticism of nlst in discussion section is unfounded - the idea is not to necessarily screen all smokers - just those at the highest risk.

**Level of interest:** An article of insufficient interest to warrant publication in a scientific/medical journal

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

i declare that i have no competing interests